DTO3 Rec'd PCT/PTO 0 3 MAR 2005

JOHN A. LAHIVE, JR. (1928-1997) THOMAS V. SMURZYNSKI GIULIO A. DeCONTI, JR. ELIZABETH A. HANLEY AMY BAKER MANDRAGOURAS ANTHONY A. LAURENTANO KEVIN J. CANNING JANE E. REMILLARD DeANN FORAN SMITH DEBRA J. MILASINCIC, Ph.D. MEGAN E. WILLIAMS, Ph.D. WILLIAM A. SCOFIELD, JR. SIBLEY P. REPPERT JOHN D. LANZA DAVID R. BURNS JOHN S. CURRAN SEAN D. DETWEILER HATHAWAY P. RUSSELL * MARIA LACCOTRIPE ZACHARAKIS, Ph.D. DANIELL
EUIHOON ...
MANEESH GÜLATI
CYNTHIA M. SOROOS
PETER W. DINI, Ph.D.
MICHAEL J. BASTIAN, Ph.D.
CHRISTOPHER J. McKENNA
VINCENT P. LOCCISANO
JAMES M. McKENZIE
CYNTHIA M. GILBERT
LEIGH J. MARTINSON
JILL R. GORNY

SENIOR COUNSEL
JAMES E. COCKFIELD

OF COUNSEL
JEREMIAH LYNCH
JEANNE M. DIGIORGIO
CYNTHIA L. KANIK, Ph.D.

PATENT AGENTS
JONATHAN M. SPARKS, P.
CRISTIN E. HOWLEY, Ph.D.
JILL ANN MELLO, Ph.D.
CHRISTOPHER E. DRABIK
JAMES H. VELEMA
JACOB G. WEINTRAUB
BRIAN C. TRINQUE, Ph.D.

TECHNICAL SPECIALISTS
CATHERINE M. BISHOP
DEBORAH L. NAGLE, Ph.D.
ANNE JACQUELINE WIZEMAN, Ph.D.
CHRISTOPHER R. COWLES, Ph.D.
W. ELANA WANG
MEAGHAN L. RICHMOND, Ph.D.

- Admitted in TX only
- ** Admitted in CT only

March 1, 2005

MS Amendment Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450

TELEPHONE (617) 227-7400

FAX (617) 742-4214

www.lahive.com

Re:

U.S. Patent Application No.: 10/509,354

For: ELECTRO-OPTIC MODULATORS INCORPORATING QUANTUM DOTS

Inventors: Nick Zakhleniuk, et al.

Filed: September 27, 2004 Our Ref. No.: BTW-087US

Dear Sir:

I enclose herewith for filing in the above-identified application the following:

- 1. Information Disclosure Statement;
- 2. PTO Form SB/08;
- 3. Copies of the International Search Reports (4);
- 4. Copies of UK Search Reports (5);
- 5. Copies of selected references cited in PTO Form SB/08 (5); and
- 6. A Return Postcard.

No additional costs are believed to be due in connection with the filing of this Information Disclosure Statement. However, please charge any necessary fees in connection with the enclosed statement to our Deposit Order Account No. 12-0080. For this purpose, a duplicate of this sheet is attached.

I hereby certify that this correspondence is deposited with the United States Postal Service as first class mail in an envelope addressed to:

MS Amendment, Commissioner for Patents, P.O. Box 1450,
Alexandria, Virginia 22313-1450 on:

/ 6/05 Date

Anthony A Laurentano, Esq. Degistration No. 38,220

Respectfully submitted,
LAHIVE & COCKFIELD, LLP

Anthony A. Laurentano, Esq. Registration No. 38,220

Attorney for Applicants



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of: Nick Zakhleniuk, et al.

Serial No.: 10/509,354

Filed: September 27, 2004

For: ELECTRO-OPTIC MODULATORS INCORPORATING QUANTUM DOTS

Attorney Docket No.: BTW-087US

MS Amendment Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Group Art Unit: N/A

Examiner: Not Yet Assigned

Certificate of First Class Mailing (37 CFR §1.8(a))

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on the date set forth below.

3///05

Date of Signature and of Mail Deposit

By:

Anthony A. Laurentano, Esq Registration No. 38,220

Attorney for Applicants

INFORMATION DISCLOSURE STATEMENT

Dear Sir:

Applicants and their Attorney are aware of the following publications and information, listed on the attached PTO Form SB/08, and in accordance with 37 CFR §1.97 hereby submit these publications for the Examiner's consideration. References A9, A19, B1-B4, and B7-B8 were cited in an International Search Report dated April 20, 2004 in the corresponding International Patent Application PCT/GB03/02108. References A1, A9, A11, A16, A19, B1-B4 and B7 were cited in an International Search Report dated April 6, 2004 in the corresponding International Patent Application PCT/GB03/02111. References A4, A8,

Serial Number: 10/

A11, A14, A16, A18 and B10 were cited in an International Search Report dated December 5. 2004 in the corresponding International Patent Application PCT/GB03/01175. References A7, A18, B5-B6, B9 and B11 were cited in an International Search Report dated September 9, 2003 in the corresponding International Patent Application PCT/GB03/01361. Since the foregoing publications and search reports have previously been transmitted to all the designated Offices by the International Bureau, Applicants do not enclose copies of those publications herewith.

Copies of cited U.S. patents (references A1-A7) are not enclosed with this statement. Applicants, however, enclose a copy of the remaining foreign patent documents and non-patent literature which were cited in UK search reports for corresponding Great Britain Patent Application Nos. GB 0207164.5, GB 0211039.3, GB 0211038.5, GB 0207166.0, and GB 0211037.7; and International Search Reports for corresponding PCT Application Nos. PCT/GB03/02108, PCT/GB03/02111, PCT/GB03/01175, and PCT/GB03/01361. A copy of the UK search reports and International Search Reports are also enclosed.

This statement is not to be interpreted as a representation that the cited publications are material, that an exhaustive search has been conducted, or that no other relevant information exists. Nor shall the citation of any publication herein be construed per se as a representation that such publication is prior art. Moreover, Applicants understand that the Examiner will make an independent evaluation of the cited publications.

Under 37 CFR § 1.97(b)(3), no additional costs are believed to be due in connection with the filing of this disclosure. If, however, a first Office Action on the merits issues in this application bearing a mailing date prior to the date of this Information Disclosure Statement, please charge the appropriate fee as required under 37 CFR §1.17(p) to our Deposit Order Account No. 12-0080.

Respectfully submitted, LAHIVE & COCKFIELD, LLP

Anthony A. Layrentano, Esq. Registration No. 38,220

Attorney for Applicants

28 State Street Boston, MA 02109 (617) 227-7400

Date:

AAL/les Enclosures

PTO/SB/08a/b (08-03)

Approved for use through 07/31/2008. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

	Substitute for form 1449A/B/PTO			Complete if Known		
1				Application Number	10/509,354	
	INFORMATION	1 DIS	CLOSURE	Filing Date	September 27, 2004	
	STATEMENT I	BY AF	PPLICANT	First Named Inventor	Nick Zakhleniuk	
				Art Unit	N/A	
	(Use as many sh	eets as ne	ecessary)	Examiner Name	Not Yet Assigned	
She	Sheet 1 of 2			Attorney Docket Number	BTW-087US	

	U.S. PATENT DOCUMENTS							
Examiner	Cite No.1	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where			
Initials*		Number-Kind Code ² (if known)			Relevant Passages or Relevant Figures Appear			
	A1	4,720,835	01-19-1988	Yukitoshi, et al.				
	A2	5,187,715	02-16-1993	Weisbuch, et al.				
	A3	5,604,762	02-18-1997	Morinaga, et al.				
_	A4	5,732,102A	03-24-1998	Bouadma				
	A5	5,909,614	06-01-1999	Krivoshlykov				
	A6	6,052,400A	04-18-2000	Nanbu, et al.				
	A7	6,294,794 B1	09-25-2001	Yoshimura, et al.				

		FOREI	GN PATENT	DOCUMENTS		
Examiner Initials*	Cite No.1	Foreign Patent Document Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	
	A8	EP 0300790 B1	01-25-1989	Kokusai Denshin Denwa Co. Ltd.		
	A9	EP 0467781 A2	01-22-1992	Kokusai Denshin Denwa Co. Ltd.		
	A10	EP 0546706 A1	03-13-1996	AT&T Corp.		
	A11	EP 0918245 A1	05-26-1999	Lucent Technologies Inc.		
	A12	EP 1094574 A1	04-25-2001	Interuniversitair Micro- Elektronica Centrum VZW		
	A13	GB 2306773 A	05-07-1997	Toshiba Cambridge Research Centre Limited		
	A14	JP 01223791 A	09-06-1989	Fujitsu Ltd.		
	A15	JP 07131121	05-19-1995	Canon Inc.		
	A16	JP 09222588 A	08-26-1997	Fujitsu Ltd.		
	A17	WO 02/025705 A2	03-28-2002	Science & Technology Corp.		

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language Translation is attached.

	NON PATENT LITERATURE DOCUMENTS							
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T²					
	A18	Aizawa, T., et al. "Observation of Field-Induced Refractive Index Variation in Quantum Box Structure." IEEE Photonics Technology Letters. 1991 Oct 1. 3(10):907-9.						

Examiner	Date	
Signature	Considered	

PTO/SB/08a/b (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/B/PTO				Complete if Known		
				Application Number	10/509,354	
I IN	IFORMATION	I DIS	SCLOSURE	Filing Date	September 27, 2004	
l s	TATEMENT B	BY A	PPLICANT	First Named Inventor	Nick Zakhleniuk	
				Art Unit	N/A	
	(Use as many sh	eets as	necessary)	Examiner Name	Not Yet Assigned	
Sheet 2 of 2		Attorney Docket Number	BTW-087US			

		NON PATENT LITERATURE DOCUMENTS				
Examiner Initials	r Cite No.1 Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, and/or country where published.					
	B1	Allen, C.N., et al. "InAs Self-Assembled Quantum-Dot Lasers Grown on (100) InP." Applied Physics Letters. 2002 May 13. 80(19): 3629-31.				
	B2	Bimberg, D., et al. "InGaAS-GaAs Quantum-Dot Lasers." IEEE Journal of Selected Topics in Quantum Electronics. 1997 Apr. 3(2).				
	ВЗ	Delorme, F., et al. "Ultra-Fast Optical Switching Operation of DBR Lasers Using an Electro-Optical Tuning Section." <i>IEEE Photonics Technology Letters</i> , 1995 Mar. 7(3).				
	B4	Griesinger, U.A., et al. "Realization of Dot DFB Lasers." <i>IEEE Photonics Technology Letters</i> . 1996 May 1. 8(5): 587-9.				
	B5	Heinrichsdorff, F., et al. "Room-Temperature Continuous-Wave Lasing from Stacked InAs/GaAs Quantum Dots Grown by Metalorganic Chemical Vapor Deposition." Applied Physics Letters. 1997 Jul 7. 71(1): 22-4.				
	B6	Kamp, M., et al. "InGaAs/AlGaAs Quantum Dot DFB Lasers Operating up to 213 C." Electronics Letters. 1999 Nov 11. 35(23):2036-7.				
	B7	Kirstaedter, N., et al. "Low Threshold, Large T Injection Laser Emission From (InGa) As Quantum Dots." Electronics Letters. 1994 Aug 18. 30(17):1416-7.				
	В8	Kohmoto, S., et al. "Site-Controlled Self-Organization of InAs Quantum Dots." Materials Science and Engineering B. 2002 Jan 16. 88(2-3):292-7.				
	B9	Lee, S.S., et al. "Analysis and Design of High-Speed High-Efficiency GaAs-AlGaAs Double-Heterostructure Waveguide Phase Modulator." <i>IEEE Journal of Quantum Electronics</i> . 1991 Mar. 27(3).				
	B10	Lester, L.F., et al. "Optical Characteristics of 1.24-µm InAs Quantum-Dot Laser Diodes." IEEE Photonics Technology Letters. 1999 Aug. 11(8): 931-3.				
	B11	Murata, S., et al. "Spectral Characteristics for a 1.5 μm DBR Laser with Frequency-Tuning Region., IEEE Journal of Quantum Electronics. 1987 Jun 1. QE-23(6):835-8.				
	B12	Oshinowo, J., et al. "Highly Uniform InGaAs/GaAs Quantum Dots (-15 NM) by Metalorganic Chemical Vapor Deposition." Applied Physics Letters. 1994 Sep 12. 765(11):1421-3.				
	B13	Ravikumar, K.G., et al. "Analysis of Electric Field Effect in Quantum Box Structure and Its Application to Low-Loss Intersectional Type Optical Switch." <i>Journal of Lightwave Technology</i> . 1991 Oct 1. 9(10):1376-85.				
	B14	Walker, R.G. "High-Speed III-V Semiconductor Intensity Modulators." <i>IEEE Journal of Quantum Electronics</i> . 1991 Mar 1. 27(3):654-67.				

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Examiner	Date	
Signature	 Considered	

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached.